

Telegraphy. Pt. 3: Facsimile Telegraphy

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mentioned. There are 9 references, all of them Soviet.

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AUTHORS: Klykov, S. I., Candidate of Technical Sciences,
Bakhtov, I. S., Engineer, Davydov, Yu. V., Engineer

TITLE: New Transit Phototelegraphic Equipment

PERIODICAL: Vestnik svyazi, 1960, No. 1 (238), pp. 3-5

TEXT: The presently used system of optical retransmission of photo telegrams shows some basic disadvantages which are pointed out in this article. An enterprise of the electrotechnical industry and the TeNIIS developed a new transit photographic instrument during the last three years. In the beginning of 1959, models of this system were tested and judged favorably by the komissiya Ministerstva svyazi SSSR (Commission of the Ministry of Communications). This equipment consists of special instruments for magnetic recording, control receivers, and commutating equipment for phototelegraphic connections. The magnetic recording instrument represents the main part which records the phototelegraphic signals in the transit point on a standard magnetic tape; from this tape, the signals are transmitted from one point and received at another with an equal equipment. ✓

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New Transit Phototelegraphic Equipment

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The retransmission of such phototelegrams is ensured without decreasing the contrast and sharpness by applying single-line magnetic recording of modulated phototelegraphic signals by such an instrument which is free of amplitude frequency distortions. Comparing the half-tone characteristics as shown in Fig. 1 for the whole transmitting channel at the optic (curve 1) and the magnetic (curve 2) retransmission shows the great advantages of the latter. The experience shows that it is possible to retransmit each phototelegram five times magnetically. Another advantage of this method is the shorter time necessary to pass a certain point, and the possibility to re-use the magnetic tape a few hundred times. The commutating equipment is considered as another important element. The scheme and the construction of the new equipment, and its operation, are described. Tests of some models in operation established the following: 1) Instruments for magnetic recording with a 300-4000 cycles' frequency range and a dynamic range of up to 40 db do not cause any substantial half-tone distortion if used through several magnetic retransmissions (up to five times), and hardly decrease the resolving power of the phototelegraphic instrument. 2) The mechanical shift caused by this instrument after five retransmissions is no more than ± 0.1 mm, which is quite

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acceptable. 3) The non-uniform sensitivity of magnetic tapes diminishes the quality of transmitted half-tone phototelegrams if retransmitted four times and more but does not cause any significant distortion of dash phototelegrams if retransmitted 1-3 times. 4) The new equipment makes it possible to improve the quality of transmission and the output factor with a good stability. The unnecessary universality and complicity of the circuits, the complex construction of the elements, and the insufficient utilization of connection channels at double transmission are considered to be of disadvantage. The editors of the periodical point out that it is planned to discuss the new system at the meeting of the Tekhnicheskiy sovet Ministerstva svyazi SSSR (Technical Council of the Ministry of Communications USSR). There are 2 figures.

Legend to Fig. 1: 1) $D_{\text{reception}}$, 2) $D_{\text{transmission}}$

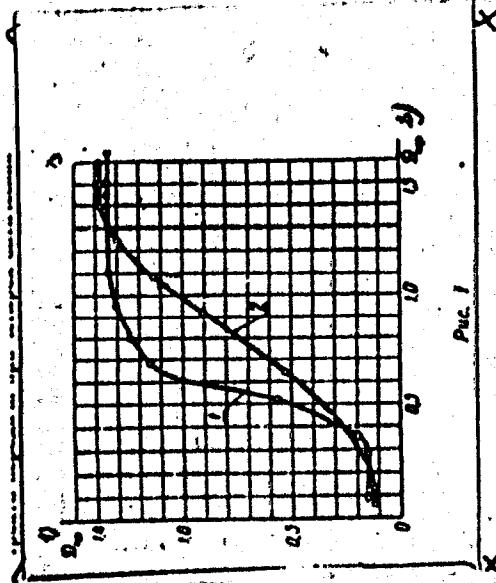
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Pic. 1

~~SPECTRAL PLATE~~ 3

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YEMEL'YANOV, Gennadiy Aleksayevich; VORONIN, Nikolay
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(Oils and fats) (Glycerides)

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(CORNEA, foreign bodies,
extraction)

(FOREIGN BODIES,
cornea, extraction)

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Raw rubbers were mixed on laboratory mills to homogeneous appear-

ance. After the required amounts of curing agents were added to the

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shows that the strength values of the compositions
unfilled SBR and SBR-18 mixtures is below the additive value. 3) the
mixtures have a lower cohesion energy.

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Lomonosova, kafedra tekhnologii pererabotki polimerov i
tekhnologii reziny.

(Rubber)

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(Kazakhstan--Climate)

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KLYKOVSKIY, V.N., inzhener.

Twenty five years ago, Inobr, v 88ER 2 No. 6145-46 Je '57.
(Kharkov--Electric industries) (REDACTED)

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KLYKOVSKIY, V.P.

Urgent problems in administrative handling of inventions.
Ischbr. i rats. no.6:24 Je '58. (MIRA 11:9)
(Inventions)

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

8/126/62/014/004/010/017
E111/E160

AUTHORS: Dutchak, Ya. I., Mykolaychuk, A. G., and Klym, N. M.
TITLE: An X-ray investigation of the structures of certain metallic liquids.
PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 4, 1962,
548-554.

TEXT: It is considered that the diffraction analysis of liquids is satisfactorily developed, and even complex liquids present no great difficulty as regards making the experimental measurements. The theoretical interpretation of the results is still uncertain. One-component liquids can be treated by either of two methods: a) the positions of the diffraction maxima can be compared with those in curves from solids having the same first coordination sphere, or b) the theoretical scattering curve can be calculated for an assumed radial distribution by the method of Prins-Glauberman and compared with the experimental. In general these methods agree for materials which are close-packed in the solid state. Only the second method is suitable for loosely-packed structures. The first method does not enable small changes to be

Card 1/3

An X-ray investigation of the ...

S/126/62/014/004/010/017
E111/E160

followed (such as changes with temperature). Metals which are not close-packed in the solid state have been studied: e.g. Al, Pb, Bi, Sb and Ga. The temperature variation of the coordination number (C.N.) for each of these liquid metals was found. In general, the C.N. falls with increasing temperature but Bi shows an anomaly where there is a maximum at 300 °C; Sb is similar. Bi appears to be hexagonal closely packed in the liquid state. Al and Pb are face centered cubic. For Ga the maximum C.N. is at the m.p. Binary liquid alloys were studied in spite of the difficulties in interpreting the results. Sn/Bi, 4:1; Bi/In, 4:1; Sn/Cd, 2:1; and Ga/Sn, 11.5:1, were examined. In the first two cases it was assumed that the two kinds of atoms were statistically distributed. A model of the average structure of the two separate liquids was used. [Editor's note: in tables 2 and 6, Zn appears instead of In but this is probably a mistake.] These liquid alloys seem to be hexagonal, closely packed. The second pair of alloys are of eutectic composition and for Sn/Cd the distribution appears as in the solid at the m.p. but statistical at higher temperatures; for Ga/Sn the distribution is statistical as regards type of atom.

Card 2/3

An X-ray investigation of the ...

S/126/62/014/004/010/017
E111/E160

There are 5 figures and 2 tables.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723310003-2

ASSOCIATION: L'vovskiy ordena Lenina gosudarstvennyy universitet
im. Iv. Franko

(L'vov Order of Lenin State University, imeni Iv. Franko)

SUBMITTED: February 13, 1962.

Card 3/3

DUTCHAK, Ya. I.; MIKOLAYCHUK, A. G.; KLYM, H. M.

X-ray investigation of the structure of certain liquid metals.
Fiz. met. i metalloved. 14 no.4:548-554 O '62.
(MIRA 15:10)

1. L'vovskiy ordena Lenina gosudarstvennyy universitet imeni
Iv. Franko.

(Liquid metals—Metallography)

DUTCHAK, Ya.I., KLIM, N.M.; MYKOLAYCHUK, A.O.

Structure and properties of the In₂Bi alloy in the liquid state.
Fiz.met.i metalloved. 14 no.5:787-789 N '62. (MIRA 15:12)

1. L'vovskiy gosudarstvennyy universitet im. I.Franko.
(Indium-bismuth alloys—Metallography)

S/126/62/014/005/012/015
E073/E435

AUTHORS: Dutchak, Ya.I., Klym, N.M., Mykolaychuk, A.G.

TITLE: On the structure and properties of In₂Bi alloys in the liquid state

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.5, 1962,
787-789

TEXT: The electric conductivity and kinematic viscosity were measured and the curves of the intensity of X-ray scattering and radial distribution of the atoms determined. Conclusions: At the fusion temperature the atoms of In and Bi in In₂Bi are distributed in the same way as in the solid state. Redistribution of the atoms takes place between the fusion temperature and 120°C and at this temperature the atoms in In₂Bi are distributed statistically. Further temperature rise leads to a regular decrease in the average coordinate number similar to that occurring on the transition of solid solutions into the liquid state. There are 5 figures and 1 table.

ASSOCIATION: L'vovskiy gosudarstvennyy universitet im. Iv. Franko
(L'vov State University imeni Iv. Franko)

SUBMITTED: March 28, 1962
Card 1/1

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

AUTHOR: Dutchak, Ya. I.; Prokhorenko, V. Ya.; Klyukin, M.

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

APPROVED FOR RELEASE: 06/19/2000

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"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

SUBMITTED: [Signature]

REC'D:

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APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723310003-2"

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

ACCESSION NR: AF5008918 JD/NW/JG 5/0076/65/039/003/0766/0768

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

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CIA-RDP86-00513R000723310003-2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723310003-2

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

L 23115-66 EWT(m)/EMP(w)/EPF(n)-2/T/EWP(t) IJP(c) JD/WW/JG

ACC NR: AP6006363

SOURCE CODE: UR/0181/66/008/002/0598/0599

AUTHOR: Dutchak, Ya. I.; Prokhorenko, V. Ya.; Klym, N. M.; Gadzevich, K. Ye.

ORG: L'vov State University im. Iv. Franko (L'vovskiy gosudarstvennyy universitet)

TITLE: Structure and electric properties of alloys of the systems indium-gallium and gallium-tin in the regions of melting and the liquid state

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 598-599

TOPIC TAGS: indium alloy, gallium alloy, tin alloy, alloy phase diagram, alloy system, thermoelectric power, electric resistance, x ray diffraction analysis

ABSTRACT: To obtain quantitative data on the structure of the liquid alloys the authors have measured the concentration dependence of the absolute thermoelectric power and of the electric resistivity of 15 alloys of different compositions for each system. From an analysis of the plotted results, in conjunction with the plots of the state diagrams, it is concluded that in the case of the gallium-tin system the eutectic composition is transformed into a physical solution with statistical distribution of atoms of different sorts at temperatures below 50C. For the indium-gallium system, the statistical distribution of the atoms is characterized at temperatures on the order of 80C. These conclusions are in full agreement

Card 1/2

ACC NR: AP/005123

SOURCE CODE: UR/0181/66/003/012/3463/3466

AUTHOR: Dutchak, Ya. I.; Prokorenko, V. Ya.; Klym, N. M.

ORG: L'vov State University im. I. Franko (L'vovskiy gosudarstvenny universitet)

TITLE: Singularities in the structure of alloys of the tin-antimony system in the liquid state

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3463-3466

TOPIC TAGS: antimony ~~examining~~ alloy, tin base alloy, liquid state, thermoelectric power, matter structure, carrier density

ABSTRACT: In view of the little attention paid in the past to the liquid state of the Sn-Sb system, the authors investigated by x-ray diffraction analysis the structure of a liquid alloy containing 8.8 at.% Sb, using as the structure-sensitive property the absolute thermoelectric power, which was investigated in a wide range of temperatures using 12 liquid alloys of the system. In addition, the structure of the 8.8% alloy was investigated at 255 and 415°C with the aid of x-ray diffraction. The radial distribution of the atoms in the liquid alloys was determined by the Fourier method from the scattering intensity curves. At low antimony concentrations, the obtained isotherms were smooth curves, in agreement with the x-ray structure analysis, indicating that the atoms are statistically distributed. At 65 at.% Sb, corresponding to the high-temperature limit of the intermetallic β phase, a maximum appears on the isotherm curve. This maximum is attributed to partial retention of directional

Card 1/2

ACC NR: AP7005328

bonds. This assumption is confirmed by the large sensitivity of the thermoelectric power to the carrier density. It was also noted that the thermoelectric power of molten alloys with high antimony concentrations decreases with temperature. This result is connected with the highly developed covalent bonding of the antimony in the solid state and the sharp increase in the free-electron density upon melting.
Orig. art. has: 3 figures, 1 formula, and 1 table.

SUB CODE: 20/ SUBM DATE: 04Jan66/ ORIG REF: 007/ OTH REF: 005

Card 2/2

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

conducted experiments show that, in simple correction circuits, it is possible to

KLYMISK, Bronisława
SURNAME, Given Name

Country: Poland

Academic Degrees:

Affiliation:

Source: Warsaw, Medycyna Weterynaryjna, Vol XVII, No 7, July 1961,
pp 437-440.

Data: "Proteins and Nonprotein Nitrogen in the Semen of the Domestic Fowl."

Authors:

PTASZ, Marian, Dr., Department of Physiological Chemistry (Zaklad
Chemiczno-Fizjologiczny), College of Agriculture (WGR--Wyższa Szkoła
Rolnicza), Wrocław; Director: Acting Prof. F. ANDREWYK, Dr.
KLYMISKI, Bronisława, Faculty of General breeding (Wydział Hodowli
Ogólnego), College of Agriculture, Wrocław; Director: Prof.
T. OLBRYCHT, Dr.

15

45

070 981643

24.10.0

AUTHORS:

TITLE:

PERIODICAL:

42765
S/185/62/007/010/007/020
D234/D308Klymyshyn, I. A. and Kravchuk, A. L.

Increase of radiation intensity before a shock wave reaches the surface of a homogeneous medium

Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 10, 1962,

1083-1088

TEXT: It is assumed that the shock wave moves with constant velocity and the energy P radiated from a surface unit of the front is independent of time. The amount of energy $J(u)$ radiated from $u = -\infty$ to u , when the wave reaches an optical depth $(u_0 - u)v$, is computed by integrating the probability function given by V. V. Slobodov; $u = t/t_1$, t_1 being the average duration of a quantum in absorption state; v is the dimensionless velocity of the wave;

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Increase of radiation ...

S/185/62/007/010/007/020
D234/D308

$$J(u) = \frac{F}{v^2(1-a^2)} [Q_1 e^{-(u_0-u)v\sqrt{\alpha_1}} + Q_2 e^{-(u_0-u)v\sqrt{\alpha_2}} + Q_3 e^{-(u_0-u)v\sqrt{\alpha_3}}] \quad (9)$$

Here $a^2 = 1 - \lambda$, λ is the relative amount of scattered energy, α_1 , α_2 , α_3 are the roots of

$$(a^2 + x^2)^2 + v^2 x^2 (1 + x^2)^2 = (x^2 + \alpha_1)(x^2 + \alpha_2)(x^2 + \alpha_3) \quad (7)$$

Q_1 , Q_2 , Q_3 depend on these roots, and on v and a . Simplified expressions are obtained for several special cases. If the velocity

Card 2/3

Increase of radiation ...

S/185/62/007/010/007/020
D234/D308

is 100 km/sec and the density $n = 10^{12} \text{ cm}^{-3}$ brightness increases \propto times in 10^{-5} sec near spectral line frequency. The above expression does not apply to rarefied media if the frequency is near that of a spectral line. The authors thank Professor S. A. Kaplan for the formulation of the subject of the paper.

ASSOCIATION: L'viv's'kyy derzhuniversytet im. Iv. Franka (L'viv State University im. Iv. Franko)

SUBMITTED: March 2, 1962

Card 3/3

PITTAZ, M.; ALMIUK-CHIEMONSKA, B.

Nitrogenous substances in the semen of cocks. Zeszyty problemowe
post nauk roln. no.31:179-182 '61.

1. Katedra Chemii Fizjologicznej, Wydział Weterynaryjny, Wyższa
Szkoła Rolnicza, Wrocław; Kierownik: Zastępca prof. dr. F. Wandekanty
Katedra Ogólnej Hodowli Zwierząt, Wydział Zootechniki, Wyższa Szkoła
Rolnicza, Wrocław. Kierownik: prof. dr. R. Olbrycht.

KLENCHAREN, A. P.

90

SOV/6176

PHASE I BOOK EXPLOITATION

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences
USSR, Resp. Ed.

Deystviya vaderoykh izlucheniy na materialy (The Effect of
Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR,
1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk;
Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A.
Adasinskii; Editorial Board: P. L. Gruzin, G. V. Kurdyumov,
B. N. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynuk,
Yu. I. Pokrovskiy, and N. F. Pravdyuk; Ed. of Publishing
House: M. G. Makarenko; Tech. Eds: T. V. Polyakova and
I. N. Dorokhina.

Card 1/4

The Effect of Nuclear Radiation (Cont.)

SOV/6176

9C

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research organization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense γ -radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

Card 2/1

The Effect of Nuclear Radiation (Cont.)

SOV/6176

5

Starodubtsev, S. V., M. M. Usmanova, and V. N. Mikhaelyan.
Change in Certain Electrical Properties of Boron and Amorphous
Selenium Under the Action of γ -Irradiation 355

Starodubtsev, S. V., and ~~A. A. Vakhidov~~ Luminescence of
Crystalline Quartz Subjected to UV- and γ -Rays 362

Starodubtsev, S. V., Sh. A. Ablyayev, and S. Ye. Yermatov.
Effect of γ -Ray Flux on Absorption Properties of Vacuum
Materials 366

Change in absorptive properties of various silica
gels and aluminosilicates, subjected to γ -ray doses of
150,000 to 350,000 r/h, were investigated.

Trinkler, E. I. Effect of γ -Irradiation on Permeability of
Some Ferrites 370

Strel'nikov, P. I., A. I. Fedorenko, and A. F. Klyucharev.
Effect of Proton Irradiation on Microhardness of Iron-
Steel 374

Card 13/14

NIKOL'SKIY, O.V.; KLYUCHARINA, O.A., redaktor; GRIBOVA, N.P., tekhnicheskiy
redaktor.

[Specialized ichthyology] Chastnaya ikhtiologija. Izd. 2., ispr.
i dop. Moskva, Sovetskaja zemka, 1954. 458 p. (MLRA 7:7)
(Ichthyology)

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

SYNCHROV, A. AND ZELENCOV, A.

Winter defense. No 12.

Tankist, No 12, 1948.

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

KLYNCHNIKOV, N. G.

USSR/Electronics - Conductivity of selenides

FD-567

Card 1/1 : Pub. 153-7/28

Author : Klychnikov, N. G.

Title : Asymmetry in the conductivity of certain selenides

Periodical : Zhur tekhn. fiz. 24, 833-836, May 1954

Abstract : Studies the rectifying properties of the selenides CuSe, Cu₂Se, Mg Se. Observed that cupric selenide in contact with magnesium after a suitable electric treatment is a satisfactory new rectifier, its advantage being its very small resistance in the conducting direction and the possibility of its operation at high temperatures.

Institution :

Submitted : September 18, 1953

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

S/194/61/000/012/080/037
D273/D301

AUTHORS: Gurevich, M. D., Klynskachev, V. A., Sobakin, M. A.
and Yakovlev, S. I.

TITLE: Ultrasonic diagnostic apparatus for the study of soft
tissues УЗД-4 (UZD-4)

PERIODICAL: Referativnyy zhurnal, Avtomatika i radicelektronika,
no. 12, 1961, 22, abstract 12E122. ("Novosti med.
tekhn." 1960, no. 6, 3-17)

TEXT: The possibilities of ultrasonic diagnostics are examined.
The diagnostic apparatus UZD-4 designed in the ВНИИММиО (VNIIMMI0)
is described. It is noted that one of the most important parameters
of the instrument - the maximum depth action - is almost entirely
determined by the ultrasonic damping coefficient in tissues and to
a lesser degree depends on the power of the transmitter, the sen-
sitivity of the receiver and other factors. The UZD-4 works at
frequencies of 2.5; 5; 10 and 15 Mc/s, a launching frequency of
1000 c/s, and a pulse length of 3 microseconds. The depth of sound-

Card 1/2

SAPROKIN, M.I., KARMANOVA, I.O., KLYONOV, E.N., MEYDLER, R.M.
SAVIN, N.G., PLEONTOVA, N.P.

"On the role of sympathetic nervous system and cerebellum in
regulation of muscle activity."

Report submitted, but not presented at the 22nd International
Congress of Physiological Sciences,
Leiden, the Netherlands 10-17 Sep 1962

KLYPIN, A. A.

"Phenomena of Thermal Fatigue and the Mechanism of the Destruction of Heat Resistant Alloys at High Temperatures." Cand Tech Sci, Moscow Order of Lenin Aviation Inst imeni Sergo Ordzhonikidze, Min Higher Education USSR, Moscow, 1954. (KL, No 1, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

KLYBIN, A. A.

1486 Yavleniye termicheskoy ustalosti i mekhanizm razrysheniya zharoprocchnykh splavov
pri vysokikh temperaturakh. M., 1954. 1/ s. 20 sm. (M-Vo vysch. obrazovaniya SSSR.
Msk. ordena Lenina sveta. in-t im Sergo Ordzhonikidze). 100 Ekz. P. ts. -(54-
5;848)

SO: Knizhnye letopis', Vol. 1, 1955

KLYPIN, A.A., kandidat tekhnicheskikh nauk.

Stress determination in a cylinder by means of experimental temperature measurements. Teploenergetika 4 no.1:33-34 Ja '57.
(N7 ~ 10:3)

1. Moskovskiy aviatcionnyy institut.
(Strains and stresses)

Klypin, A.A.

129-12-5/11

AUTHORS: Kishkin, S.T., Doctor of Technical Sciences, Prof.
and Klypin, A.A., Candidate of Technical Sciences.

TITLE: Mechanism of disruption of the alloy 3M437 under
conditions of operation at elevated temperatures for
long durations. (Mekhanizm razrusheniya splava EI437
v usloviyakh dlitel'noy raboty pri povyshennykh
temperaturakh).

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1957, No.12,
pp. 36-40 (USSR)

ABSTRACT: Available data indicate that creep is accompanied by
development of cracks (Refs.1-3). Crack formation due
to reduced breaking strength is one of the types of
exhaustion of the strength with the progress of time.
The reduction of the breaking strength with time is
associated with a change in the structure under the
influence of temperature and creep along the grain
boundaries. In this paper disruption of the alloy 3M 437
at elevated temperatures is investigated and also the
influence of forming cracks on the strength properties.
Forged rods of the alloy were subjected to heat treatment
and at a constant load the time taken to disrupt the
Card 1/3 specimen was determined. Tests with periodic heating

129-12-5/11

Mechanism of disruption of the alloy 9Ni 437 under conditions
of operation at elevated temperatures for long durations.

and cooling were made by the same set-up, except that the furnace had a changed design inasmuch as it was possible to subject the loaded specimen to an air blast perpendicular to its axis. The hardness of the melt during isothermal annealing at 700°C for 100 hours increases intensively, as can be seen in Fig.1; no hardness increase was observed at 800°C. The increase in hardness indicates that the strength of the investigated alloy increases as a result of the formation of finer phases which block plastic deformation. The disruption at a constant load cannot be associated with coagulation and with dissolution of hardening phases, for a time interval of 100 hours. Metallographic investigation on specimens which permit observation of the changes in the structure during the tests have shown that, in the case of long duration stresses, fine cracks occur. During the remaining time until disruption, growth of the existing cracks and formation of new ones continues. Fig.2 shows the creep curve of a specimen tested at 800°C with a stress of 25 kg/mm². The graph, Fig.5, shows the

Card 2/3

SOV-129-58-6-5/17

AUTHORS: Kishkin, S. T. (Dr.Tech.Sci.Prof.), Klypin, A. A. and Sulima, A. M. (Cands.Tech.Sci.)

TITLE: Influence of the Plastic Deformation on the High Temperature Strength of the Alloy EI437 (Vliyaniye plasticheskoy deformatsii na zharoprochnost' splava EI437)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 6, pp 18-21 (USSR)

ABSTRACT: The aim of the here-described work was to study the properties of the alloy EI437 after preliminary plastic deformation and to establish the mechanism of failure of this alloy at 500, 700 and 800°C. The technique and the results are described. The authors arrived at the following conclusions: (1) The plastic deformation has an important influence on the service life of dispersion hardened high temperature alloys of the type EI437, reducing the service life considerably at 700 to 800°C. (2) The influence of plastic deformation is linked with an acceleration of the diffusion processes which form the basis of dispersion hardening and which lead to a decrease in the breaking strength; at low temperatures when there is no appreciable acceleration of the diffusion processes, the factor of breaking up of the grains of the metal into blocks pre-

Card 1/2

SOV/129-59-5-3/17

Cand. Tech. Sci.

AUTHORS:

Dr. Tech. Sci. Prof. S.T. Kishkin;

A.A. Klypin

TITLE:

Influence of Repeated Heating and Cooling on the Changes
in the Properties of Steels and Alloys (Vliyaniye
mnogokratnykh nagrevov i okhlazhdenny na izmeneniye
svoystv stalei i splavov)PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov,
1959, Nr 5, pp 15-19 (USSR)

ABSTRACT: The aim of the work described in this paper was to study the influence of cyclic heating and cooling on the mechanical properties of certain steels and of the alloy EI-437. The heating was effected by induction, using a 200 kc/sec current supplied from a 60 kW tube oscillator. The specimen was cooled with water or with air, the feed rate of which was controlled by two electric valves. The circular specimens of 5 mm diameter, which were used for short and long duration tests, were subjected to heating and cooling according to a pre-determined regime. Prior to the tests the specimens were heat treated so as to exclude the influence of previous heat treatment. The specimens were heated on a 8 to 10 mm long section in the

Card 1/3

SOV/129-59-5-3/17

Influence of Repeated Heating and Cooling on the Changes in the Properties of Steels and Alloys

middle and in this section the temperature was maintained practically equal at the various points of the surface. The heating temperature for the steels was 550, 700 and 780, 850°C; for the stainless steel 1Kh18N9T and for the alloy EI-437 the heating temperature was 800°C. The heating duration was 2 to 4 seconds. In Figs 1 to 4 the changes are graphed of the various mechanical properties of the tested steels and alloys as a function of the number of heating cycles. On the basis of the obtained results the following conclusions are arrived at:

- 1) As a result of cyclic heating above 780°C and cooling, the strength will decrease with increasing content of the carbon on the steel. This is attributed to a decrease in the tensile strength of the material with increasing carbon content. 2) The drop in strength and plasticity with increasing number of heating cycles of all the materials investigated in these experiments is attributed to the formation of microcracks at the surface of the specimens. 3) Appearance of microcracks during heating below the critical range is associated with thermal
- Card 2/3

SOV/129-59-5-3/17

Influence of Repeated Heating and Cooling on the Changes in the Properties of Steels and Alloys

stresses occurring during rapid cooling. An increase in the cycle temperature and also in the cooling speed leads to a more intensive development of cracks. 4) In the alloy EI-437 the cracks were exclusively along the grain boundaries. In other investigated materials the cracks were detected along the boundaries as well as along the body of the grain.

Card 3/3 There are 5 figures and 5 references, 4 of which are Soviet and 1 German.

KISEKIN, S. T., doktor tekhn. nauk; KLYPIN, A. A., kand. tekhn. nauk;
NIKOLENKO, V. V., kand. tekhn. nauk

Characteristics of metal failure at high temperatures. Trudy
MAI no.123:5-16 '60. (MIRA 13:8)
(Heat-resistant alloys) (Thermal stresses)

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

KISHKIN, S. T., doktor tekhn.nauk; KLYUB, A. A., kand. tekhn.nauk;
KARYAKINA, N. V., kand.tekhn.nauk, NIKOLENKO, V. V.; CHERNOV, M. N.

Investigating the relation of structure and properties of
materials for gas-turbine blades to the duration of their use.
Trudy MAI no.123:25-34 '60. (MIRA 13:8)
(Gas turbines--Blades)

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2"

ACCESSION NO. A7404750
DATE 1/20/86 BY 7000
AVIONICS INSTITUTE OF THE RUSSIAN AIR FORCE
(Candidate of technical sciences)

Effect of short overheating on aircraft instrument equipment

COMPILED: Moscow, Aviatsionnyy Institut, Trudy, no. 158, 1966.

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310003-2

heat resistant alloy. Nickel base aluminized alloy, annealing, cold worked or drawn.

APPROVED FOR RELEASE: 06/19/2000

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